Capture your sample precisely as it is.

ZEISS Axiocam 712 mono

Your flexible 12 megapixel microscope camera for fast high resolution imaging of large specimen areas.

zeiss.com/axiocam712-mono

Seeing beyond

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Your flexible 12 megapixel microscope camera for fast high resolution imaging of large specimen areas.

When you need to image large specimen regions with high speed and sensitivity, Axiocam 712 mono is your ideal microscope camera. Its large 12 megapixel CMOS sensor with small pixels delivers top optical resolution.
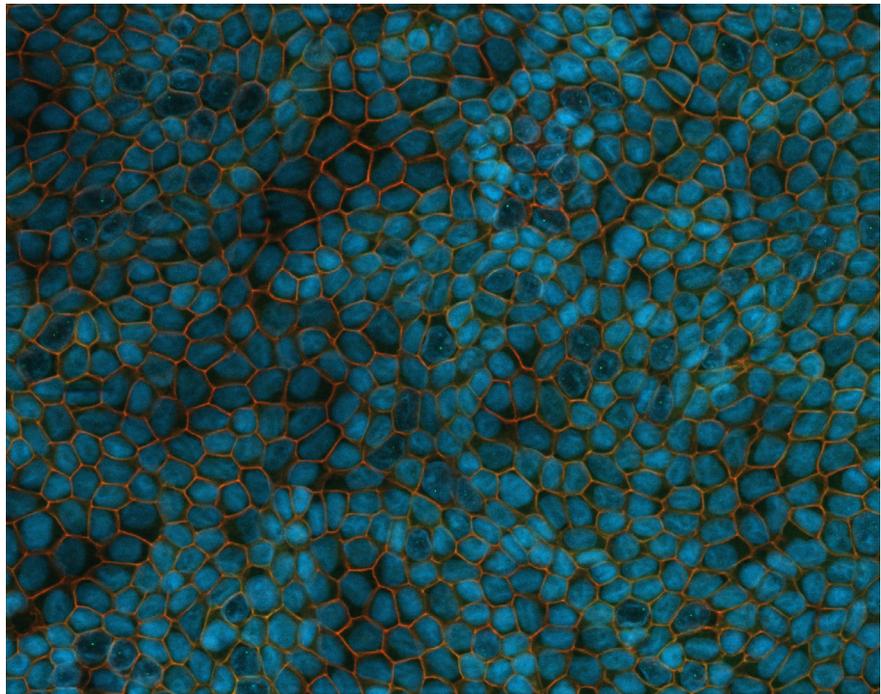

Polarized CACO-2 cells, filter-grown for two weeks and MeOH fixed; blue: DNA (DAPI); green: cell-cell-adhesion protein, red: ß-catenin (monoclonal antibody). Specimen courtesy of Christian Hartmann and Klaus Ebnet, Center for Molecular Biology of Inflammation, Institute of Medical Biochemistry, WWU Münster.

Lowest noise and high quantum efficiency allow you to tackle applications needing the highest sensitivity. Combining a large sensor with an abundance of small and sensitive pixels makes your Axiocam 712 mono a very flexible camera, suitable for countless different applications.

Axiocam 712 mono's actively cooled CMOS sensor offers lowest readout noise and stable operation over long periods of time. Exposure times can range from 100 µs for the most dynamic specimens up to 60 s for detection of the dimmest signals. This camera delivers more than 20 frames per second at full pixel count and goes up to more than 100 frames per second with a reduced pixel count. Hardware triggering enables precise synchronization of your multidimensional imaging experiments while the global shutter camera architecture makes sure your images always stay free of motion artefacts. Peak quantum efficiency of over 72%, a broad detection spectrum and a high near-IR sensitivity complete the camera's set of excellent features. That makes Axiocam 712 mono your all-in-one tool for monochrome imaging applications, ranging from imaging of large sample regions and dynamic specimens to high-sensitivity microscopy of fragile fluorescent specimens.
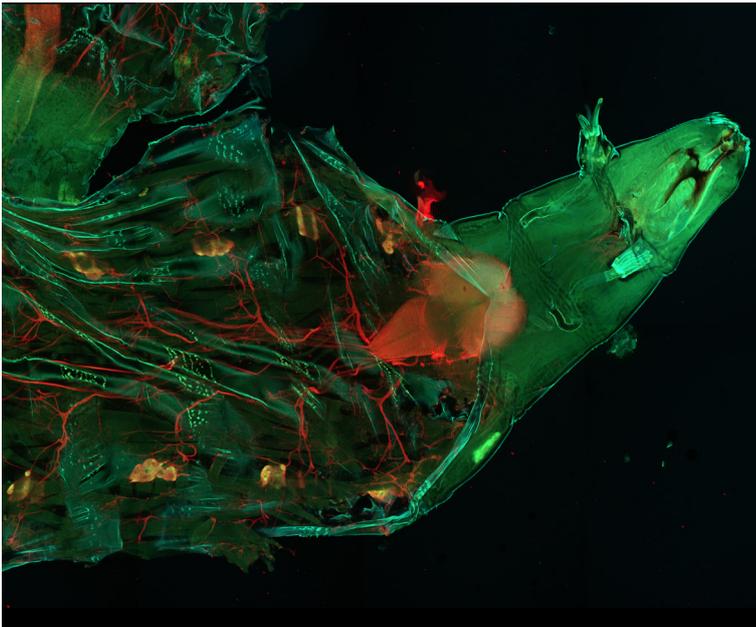
Drosophila *larval fillet. Blue, green: autofluorescence, red: neural network.*
*The image is a mosaic of 37 optical sectioned tiles acquired with ZEISS Apotome.2.*

Highlights

- 12-megapixel cooled global-shutter CMOS sensor
- Large sensor for extended field of view
- Wide sensitivity spectrum 350 nm – 1000 nm
- 20 frames per second in full 12-megapixel resolution*
- 30 frames per second of the entire field of view in live image mode*
- Low readout noise and analogue signal amplification
- Exclusive noise inhibition technology for low-light imaging
- Dynamic range of 1:25,000 in high-dynamic range (HDR) mode
- Small 3.45 µm pixels for high-resolution imaging
- Hardware triggering

Recommended for:

- High-resolution fluorescence microscopy
- Large region imaging
- Research
- Live cell imaging
- Macroscopic imaging

* specified framerate assumes a sufficiently performant computer and a short camera exposure time

Quantum Efficiency ZEISS Axiocam 712 mono

Quantum Efficiency [%] vs Wavelength [nm]
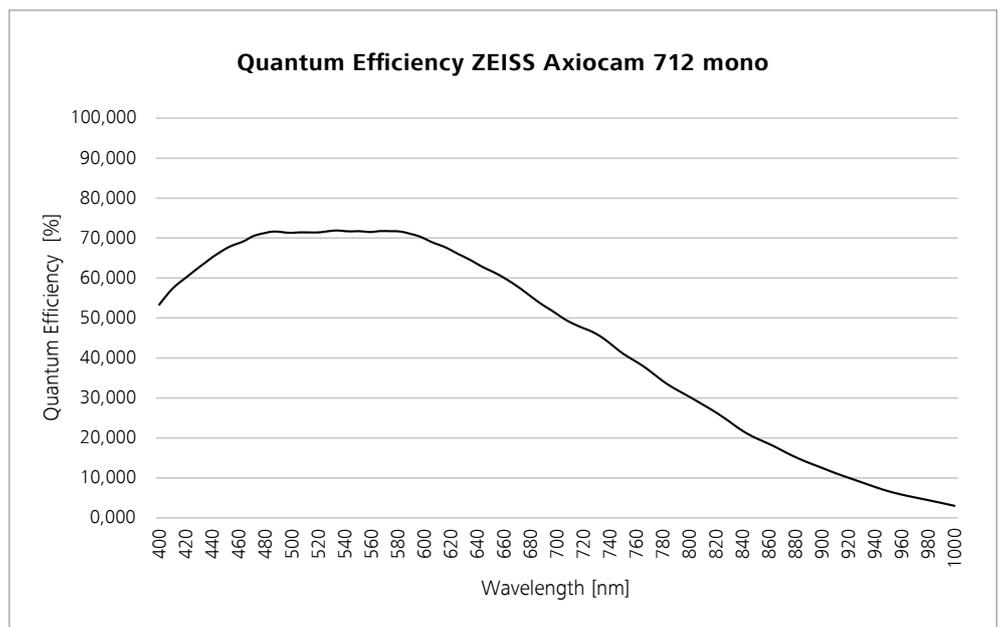
Technical Specifications

Technical Data	
Sensor type	Sony CMOS image monochrome sensor, global shutter architecture
Sensor size	Image diagonal 17.5 mm, equivalent to 1.1" sensor format (14.1 mm × 10.4 mm)
Pixel count	4096 (H) × 3008 (V) = 12 megapixel
Hardware sensor subsampling	2048 (H) × 1504 (V) = 3 megapixel @ full field of view
Pixel size	3.45 µm × 3.45 µm
Bit depth	14 bit, 12 bit or 8 bit
Exposure range	from 0.1 ms to 60 s
Gain	1×, 2×, 4×, 8×, 16×,
Binning	1×1, 2×2, 3×3, 4×4, 5×5 (combined analog and digital binning)
Dark current signal	< 0,5 e/pixel/s at sensor temperature 18 °C
Frame rate	30 fps live image H × V (ROI) — Frame Rate (fps) 4096 × 3008 — 23 2048 × 1504 — 46 (2×2 subsampling, full field of view) 1920 × 1080 — 63 1024 × 1024 — 66 1920 × 256 — 241 1920 × 128 — 431
Dynamic range	Read Noise (gain) — Full Well — Dynamic Range 2.20 e (1×) — 11,000 e — 1:5,000 1.74 e (2×) — 5,000 e — 1:3,100 1.48 e (4×) — 2,700 e — 1:1,800 1.29 e (8×) — 1,300 e — 1:1,300 1.15 e (16×) — 690 e — 1:600
High dynamic range (HDR) mode	Extended dynamic range 1:25.000
Cooling system	Active thermoelectric cooling, regulated sensor temperature 18 °C
Spectral sensitivity	Approx. 350 nm – 1000 nm, protection glass (coated)
Interfaces	USB 3.0 (data & power) and USB 2.0 (power only)
Trigger ports	Trigger-in, trigger-out, status readout
Power supply	From PC through USB connections, max. power consumption: 7 W
Operation system	Windows 10 Pro / Ultimate
Software	ZEN 3.1 (blue edition) or newer, ZEN core 2.7 or newer
Image enhancement functions	Denoise, unsharp mask, shading correction, dark current compensation, blemish removal
Automatic features	Automatic exposure time optimization
Optical/mechanical interface	C-Mount
Dimensions and weight	10.8 cm × 7.8 cm × 4.3 cm (2.3" × 3.2" × 1.7"), 580 g
Order number	426560-9090-000

CE

ISO 9001:2015
ISO 13485:2016

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